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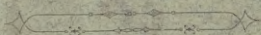
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FUNCTIONS OF THE SPLEEN



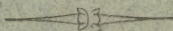
Containing an explanation of the Functions of the Spleen. Its Relations to the Circulation of the Blood and the Stomach, with advanced Philosophical Views upon the Creation of Force and Motion in the Circulation of the Blood, &c., &c.



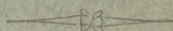
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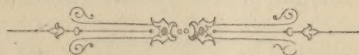




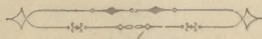
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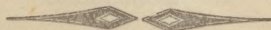
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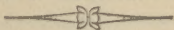


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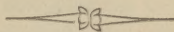


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FUNCTIONS OF THE SPLEEN NOT KNOWN.

From all the knowledge obtained of medical men, the evidence is that the functions of the Spleen is not known. Some are of the opinion that it is a blood making organ, but they can give it no proof or demonstration; an observation of the circulatory system shows that *the blood is formed before it reaches the Spleen*. That it has something to do with the circulation of the blood is universally believed, but what it is, is not known. That it is a functinary organ, and for a useful purpose, is the general belief, it is also evident that unless the functions of all the parts of the human body are known, that the treatment of the diseases to which its is subject can never reach the highest point of excellence and skill. It is the mission of this pamphlet to give a demonstration of what its functions are. to do this clearly, it will be necessary to state, first, that,

MAN WAS CREATED AND IS GOVERNED BY FIXED LAWS.

The first man that ever lived was created a full grown man by a superior intelligence and skill. A Master Mechanic! This is evident from the fact that it would have been an utter impossibility for man to evolve from babyhood into manhood. Without parental care he would have died at birth. Physiology is the evidence of creation in men and animals, and the superior intelligence in man is the evidence of a God, who has made his spirit subject to divine law; and his body to natural and mechanical laws. Set aside these truths and a further investigation of this subject would be useless.

MAN'S BODY IS A MACHINE GOVERNED BY NATURAL AND MECHANICAL LAWS.

The frame work of man is a machine, all the parts of which are needed to make a perfect whole. a compound machine, kept in motion by its internal forces of heat and air. The most important organ in the body is the stomach, it is the master wheel that drives all the other parts, the seat of power; the point where motion is first obtained, by an evolution of heat. The organ of second importance in generating motion is the lungs; it is the point where the blood first comes in contact with the air. The origin of the blood and its circulation is in the stomach, where the carbon of the food combines with the oxygen within it, evolving heat; and the heat producing motion. Digestion is a species of combustion, that converts the food into chyme, and the chyme into chyle, and the chyle into blood; when it is taken into the system by the lymphatics, &c. After the volatile and nourishing sub-

stances are taken out of the food by digestion, the excrement cast out is the ashes, and the urine the exhaust or waste steam, produced by the evaporation of the food by the internal heat of the body and the stomach. It is from the internal heat of the stomach that the blood first obtains the heat that gives it motion. Heat produces expansion, and when this expansion is confined, it produces internal motion. This heat first produced in the stomach gradually increases, as its substances reach the circulation. The circulation of the blood is that of a circuit, and consists of two distinct systems; the venous and the arterial; these two systems being united by capillary attraction in the capillary system. It is the opinion of the writer that there is a special law of gravitation that aids in the circulation of the blood, that is, in giving it motion; it is that law by which large bodies attract smaller ones; and towards a common centre; and by which the small streams are drawn towards the larger ones. The heart being the larger receptacle for the blood, the blood from the other parts gravitate towards it, aided by its motion, obtained by the heat and air within it, and from which the blood is expelled by its contractions and expansions. This power is said to be enormous. But the reader will observe that the pulsations of the heart is largely assisted by the heat that is within the blood, and the compressed air taken into it by respiration, and aided by gravitation; without these forces it would be impossible for the heart to send the blood through all the crooked paths of the arteries and veins, to distant parts of the body. There are also two other forces at work in assisting the heart to perform its functions, that is, in receiving and expelling the blood from it. The one is centripetal force, which means seeking the centre. The other is centrifugal force, which means flying away from the centre. These two mechanical forces are in operation in the heart continually. The heart is the centre in which these two forces operate. An examination of the circulation in the heart will be a demonstration of the wonderful working of these two forces. Suction produced by respiration is a powerful agent in producing pulsation in the heart. The circulation of the blood is carried on upon the philosophical principal of circular motion, that is, motion around or from a central point, which is the heart; circular motion is caused by the continued operation of two forces, for instance; the whirling of a ball fastened to a string, held by the hand is an illustration, of the circulation of the blood; which in the human body is in a compound or double form; the centre of the veinous and arterial circulation being united at the heart or sides of the two circles. There are three distinct centres in the circulation of the blood, all of them having their central point in the heart, namely :

The centre of magnitude, which is the central point of the bulk of a body; and the centre of gravity, the point about which all the parts balance each other, at the centre of motion. Capillary attraction is also an important agent in promoting the circular motion of the blood. But the compound motion is sustained mainly by the elements of air and heat, regulated by the natural and mechanical laws herein named; the heart being the central point of distribution of it, for all parts of the body.

THE FORCES AT WORK IN THE CIRCULATION OF THE BLOOD SUMMED UP.

From what has been herein written the forces at work in performing the work of the circulation of the blood, by natural and mechanical laws, may be summed up as follows:

FIRST—Motion obtained by the evolution of heat.

SECOND—By Respiration.

THIRD—By Gravitation.

FOURTH—The Heart the centre of motion.

FIFTH—Centripetal force.

SIXTH—Centrifugal force.

SEVENTH—Government of motion by the Spleen, which is its first function.

Before entering upon a detailed explanation of what the functions of the Spleen are it will be necessary to give an explanation of its connections with the circulation of the blood and other functionary organs.

THE SPLEEN AND ITS CONNECTIONS WITH THE CIRCULATION OF THE BLOOD AND OTHER FUNCTIONARY ORGANS.

The Spleen is an organ having no ducts, and is united to the arterial circulation by the splenic artery; and to the venous system by the splenic vein. The reader will observe that this vein and artery is very large in proportion to the size of the organ, and all for a wise purpose, too, as we shall presently see. The splenic artery, the gastric artery, the hepatic artery, are all united on the aorta; connecting the spleen with the arterial system; with the stomach externally, and to the liver and heart. The spleen lays over the stomach and upon it. This, with the aid of its large vein and artery, and the large veins and arteries in connection with it and over the stomach gives it the power of imparting an external heat to the stomach, which aids it in the secretion of its gastric juice. The Spleen, in addition to its function of government of the motion of the blood which is its principal function, has the additional function of aiding the stomach in the secretion of its gastric juice.

FUNCTIONS OF THE SPLEEN EXPLAINED

A body at rest cannot put itself in motion, nor can a body in

motion stop itself. Motion is a continued change of place, and that which causes it is called force. The forces producing a compound motion of the blood have already been explained. That which stops motion is called resistance. The rapidity with which the blood, or body moves is called velocity. There is the venous and arterial circulation. *They should be equal in their velocity*, that is, their momentum should be equal. *It is the office of the Spleen to regulate the velocity of these two circulatory systems*, this it does by the weight of the Spleen exerting a pressure upon the splenic vein and artery. All the blood in the human body passes through the heart once in every twenty seconds, and it is believed that the circulation in the veins is slower than in the arteries. To the writer this does not appear to be reasonable; from the fact that the circulation of the two systems are united, and carried on upon the principal of a circuit, but the idea is not in conflict with the functions of the Spleen herein advanced. Momentum is the quantity of motion, and it expresses the force with which it would strike against another body. The Spleen regulates and governs the velocity and momenta, or the force with which the blood in motion would strike against the heart; or in other words it regulates by its weight the force with which the blood is received and expelled from the heart. It regulates the quantity of motion in the blood. In proof that it is the office of the Spleen to regulate the circulation by giving it regularity in velocity by its weight, Dr. Flint and other good authorities state that enlargement of the Spleen can always be known by percussion in the heart, and smallness of the Spleen will produce the opposite effect. To produce the best results in the circulation, the Spleen should be of a proper size and exact weight, that is, it should be of a normal size; *and in good health!* The machines made by men in which motion is obtained by the application of force have their motions regulated; for this purpose is the balance wheel that gives regularity with increased velocity, and we have the pendulum, and governor for water wheels and engines, &c. If the superior intelligence and creator made man's body, and applied to it the elements of air and heat in such a way that through the motion of the blood it has physical life and power, would it have been perfect, if He had made no provision by which the motion and circulation of the blood could have been carried on with regularity, precision and ease, and without jar? He has made provision for this in the Spleen. Of all the regulators for motion in man made machinery, there is none that is so apt an illustration of the action of Spleen upon the motion of the blood, as the governor on the steam engine and its boiler. In it we have the fire box where the food or fuel is consumed. The boiler where force is generated, that is

steam for motion and the governor to regulate that motion, by its weight and to obtain good results its weight must be exact. As has already been explained, the secondary function of the Spleen is to aid digestion by aiding the stomach in the secretion of its gastric juice by external warmth. Immediately after eating the Spleen becomes somewhat enlarged, and there is also a slight increase in the pulse. This increase in the size of the Spleen after eating is the Spleen adjusting itself to its required condition. After eating there is an increase of food to digest, and the Spleen enlarges itself by nature, in order that the stomach can secrete the required gastric juice, which begins immediately after food enters the stomach and ceases after it gets empty. This proves that the Spleen has the function of aiding the stomach in the secretion of gastric juice, and it proves by the quickened pulse after eating, by enlargement of the Spleen, that its weight accelerates the pulse, this proves that it has when in health, the function of regulating the circulation and governs it according to the quantity of the blood and the quantity of food in the stomach. When there is any enlargement of the Spleen, or any unusual smallness of it, it can be determined by the action of the digestion, and at the pulse and heart. The cause is in the Spleen, the effects are upon the stomach and the circulation or motion of the blood. The true rotation of cause and effect, as applied to the Spleen, is ; whatever effects the Spleen, effects the stomach, and the circulation of the blood and the heart. In taking a view of a diagram of the circulation it will be seen that the blood passes from the right side of the heart through the lungs and from thence into the heart, and from the heart to the brain and downward through the body to the Spleen ; the principal action of the Spleen upon the venous system being between the liver and intestines, *This would indicate that the Spleen was acted upon mostly by the descending current of blood in the arteries; this is essentially true*, but the results upon the circulation of the venous and arterial system are equalized at the heart.

REMOVAL OF THE SPLEEN.

The Spleen has been removed from men and animals and the effect produced is that life is shortened, and a few years is all under the most favorable cases, that the subject can live ; this is proof that its presence in the body is essential to good health and long life. When the Spleen is removed in the dog there is derangement of the circulation, with at first intense hunger. Hunger is a distension of the vessels that secrete the gastric juice. This intense and unnatural hunger is the piteous and yearning cry from the stomach of the dog to replace the Spleen of which it has been robbed. When the Spleen is removed the functions of the stom-

ach and the circulation are performed very imperfectly and irregular, and the victim dies a premature death. The above is the evidence produced by those who have made practical tests, according to the knowledge obtained by the author.

THE PERFORMANCE OF THE FUNCTIONS OF THE SPLEEN DURING ITS ABSENCE.

Although the Spleen can be removed without producing immediate death it is established that if the splenic vein or artery is ruptured or injured death will ensue within twenty-four hours. An evidence that these two vessels assume and perform in part its functions. This is one reason why these two blood vessels are large in proportion to the Spleen. A greater strain is put upon the valves of the veins and heart, there vital powers are weakened. If the functions of the Spleen are performed at all during its absence it is done very imperfectly. If an unusual smallness of the Spleen is the undoubted evidence of a gradually diminished vitality, and the authorities say it is, then the removal of the Spleen would indicate a decreased vitality with an increased ratio. The steam engine can be run without a governor, but every engineer knows that there can be no regularity of its motion without it. The same is true of the Spleen in its regulation of the motion of the blood, without it the circulation is at random, and vitality is diminished. The powers of the stomach are gradually diminished and the external warmth produced by the Spleen for the secretion of gastric juice is imperfectly performed by the blood vessels that cover it, with such aid as they can obtain from the splenic veins and artery.

DISEASES IN WHICH THE SPLEEN IS AFFECTED.

The medical authorities inform us that malaria and plethora produce enlargement of the Spleen. That it is larger in well fed animals and smaller in poorly fed ones, it will adapt itself in size to the quantity of the blood and the supply of food or fuel. There is no agent so powerful to the destruction of the functions of the blood and Spleen as malaria and plethora. The entrance of poisoned air excites the circulation, enlarges the Spleen, and this enlargement is always known by percussion in the heart then again whatever effects digestion effects the circulation. If there is more food than can be digested it effects the Spleen unhealthily, and this effects the circulation and the heart. Flint in his practice of medicine, page 643, writes: "That diseases in which the Spleen becomes as a rule more or less enlarged are: Malarial Typhoid and Puerperal Fever, Piema and Yellow Atrophy of the Liver. Diseases in which this organ is often effected are Scarlet Fever,

Measels, Small-pox, Epidemic Cerebro Spinal Menegitis, Acute Millary Tuber Culosis, Erysipelas Pneumonia and Diphtheria." The remedies are for the doctors. But in cases of Plethora bleeding would naturally suggest itself, and where there was unnatural smallness from lack of nourishment, give and nourish the nourishment in the Spleen and blood.

A HEALTHY SPLEEN THE SIGN OF LONG LIFE AND GOOD HEALTH.

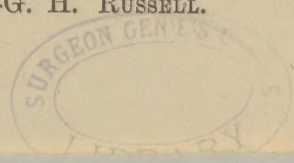
We have already proven that the presence of the Spleen is not only essential to good health, but to long life. Gray in his Anatomy writes that in old age it not only decreases in weight, but decreases considerably in proportion to the entire body, being as 1 to 700. When an engineer is running an engine he takes care to regulate the quantity of fuel to the quantity of steam needed. The fuel in the stomach should be regulated to the quantity of blood and nourishment needed, and as an engineer regulates the draft upon the fire, so the air upon the lungs should be regulated, and it should be pure. One authority says the heart in old age is increased in size, while the Spleen is diminished. Any smallness of the Spleen is the sign of a short life, and a gradual diminishing vitality; to avoid it, the supply of blood and air must be kept up by exercise and good digestion. It is the opinion of the writer that with a sound body, and good digestion in a body that is well clothed and fed and not over fed, rather under fed, that is, protected from sudden atmospheric changes and bad air, that such a person would be renewed continually as in their youth, and if there was not overwork, nor under work, of mind or body, mechanical injuries excepted; that under such conditions the Spleen would maintain a healthy and normal size; and such a person might live to a great and good old age, perhaps one hundred and fifty years. A healthy Spleen of the right size is the sign of vitality and long life. A very proper name for it would be; *The organ of long life!*

CONCLUSION.

To understand what is herein written a knowledge of Anatomy, the circulation of the blood and the philosophical laws of motion is required; No motion can exist except by force, and no machine could exist except there be a mechanic; and no machine in which there is motion is perfect unless that motion is regulated. Man's body is a machine, propelled by its internal forces and guided by the soul, which is subject to that higher law, THE DIVINE! and as a man is mightier than the machine he makes, and to which he applies force; so is GOD THE CREATOR mightier than man's body; which machine he has made; and into which he has breathed a soul of superior intelligence and responsibility.

~~THE AUTHOR.~~

N. B.—The opinion of physicians is solicited.—G. H. RUSSELL.



George B. Russell
For

1000 Cash & 1000 M
Surgeon General

W. S. Army